

CALPUFF Version: 5.8 Level: 070623

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Clock time: 14:42:12  
Date: 04-30-2015

Internal Coordinate Transformations by --- COORDLIB Version: 1.98 Level: 060911

Run Title:  
CALPUFF Input File  
Cleco, Brame Energy Center  
2001 Baseline, REV A

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INPUT GROUP: 1 -- General run control parameters

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Option to run all periods found  
in the met. file (METRUN) Default: 0 ! METRUN = 0 !

METRUN = 0 - Run period explicitly defined below  
METRUN = 1 - Run all periods in met. file

Starting date: Year (IBYR) -- No default ! IBYR = 2001 !  
(used only if Month (IBMO) -- No default ! IBMO = 1 !  
METRUN = 0) Day (IBDY) -- No default ! IBDY = 1 !  
Hour (IBHR) -- No default ! IBHR = 0 !

Base time zone (XBTZ) -- No default ! XBTZ = 0.0 !  
PST = 8., MST = 7.  
CST = 6., EST = 5.

Length of run (hours) (IRLG) -- No default ! IRLG = 8760 !

Number of chemical species (NSPEC)  
Default: 5 ! NSPEC = 9 !

Number of chemical species  
to be emitted (NSE) Default: 3 ! NSE = 7 !

Flag to stop run after  
SETUP phase (ITEST) Default: 2 ! ITEST = 2 !  
(Used to allow checking  
of the model inputs, files, etc.)

ITEST = 1 - STOPS program after SETUP phase  
ITEST = 2 - Continues with execution of program

after SETUP

Restart Configuration:

Control flag (MRESTART) Default: 0 ! MRESTART = 0 !

- 0 = Do not read or write a restart file
- 1 = Read a restart file at the beginning of the run
- 2 = Write a restart file during run
- 3 = Read a restart file at beginning of run and write a restart file during run

Number of periods in Restart

output cycle (NRESPD) Default: 0 ! NRESPD = 0 !

- 0 = File written only at last period
- >0 = File updated every NRESPD periods

Meteorological Data Format (METFM)

Default: 1 ! METFM = 1 !

- METFM = 1 - CALMET binary file (CALMET.MET)
- METFM = 2 - ISC ASCII file (ISCMET.MET)
- METFM = 3 - AUSPLUME ASCII file (PLMMET.MET)
- METFM = 4 - CTDM plus tower file (PROFILE.DAT) and surface parameters file (SURFACE.DAT)
- METFM = 5 - AERMET tower file (PROFILE.DAT) and surface parameters file (SURFACE.DAT)

Meteorological Profile Data Format (MPRFFM)

(used only for METFM = 1, 2, 3)

Default: 1 ! MPRFFM = 1 !

- MPRFFM = 1 - CTDM plus tower file (PROFILE.DAT)
- MPRFFM = 2 - AERMET tower file (PROFILE.DAT)

PG sigma-y is adjusted by the factor (AVET/PGTIME)\*\*0.2

Averaging Time (minutes) (AVET)

Default: 60.0 ! AVET = 60. !

PG Averaging Time (minutes) (PGTIME)

Default: 60.0 ! PGTIME = 60. !

!END!

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NOTICE: Starting year in control file sets the expected century for the simulation. All YY years are converted to YYYY years in the range: 1951 2050

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INPUT GROUP: 2 -- Technical options

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Vertical distribution used in the  
near field (MGAUSS) Default: 1 ! MGAUSS = 1 !  
0 = uniform  
1 = Gaussian

Terrain adjustment method  
(MCTADJ) Default: 3 ! MCTADJ = 3 !  
0 = no adjustment  
1 = ISC-type of terrain adjustment  
2 = simple, CALPUFF-type of terrain  
adjustment  
3 = partial plume path adjustment

Subgrid-scale complex terrain  
flag (MCTSG) Default: 0 ! MCTSG = 0 !  
0 = not modeled  
1 = modeled

Near-field puffs modeled as  
elongated slugs? (MSLUG) Default: 0 ! MSLUG = 0 !  
0 = no  
1 = yes (slug model used)

Transitional plume rise modeled?  
(MTRANS) Default: 1 ! MTRANS = 1 !  
0 = no (i.e., final rise only)  
1 = yes (i.e., transitional rise computed)

Stack tip downwash? (MTIP) Default: 1 ! MTIP = 1 !  
0 = no (i.e., no stack tip downwash)  
1 = yes (i.e., use stack tip downwash)

Method used to simulate building  
downwash? (MBDW) Default: 1 ! MBDW = 1 !  
1 = ISC method  
2 = PRIME method

Vertical wind shear modeled above  
stack top? (MSHEAR) Default: 0 ! MSHEAR = 0 !  
0 = no (i.e., vertical wind shear not modeled)  
1 = yes (i.e., vertical wind shear modeled)

Puff splitting allowed? (MSPLIT) Default: 0 ! MSPLIT = 0 !  
0 = no (i.e., puffs not split)  
1 = yes (i.e., puffs are split)

Chemical mechanism flag (MCHEM) Default: 1 ! MCHEM = 1 !  
0 = chemical transformation not  
modeled  
1 = transformation rates computed  
internally (MESOPUFF II scheme)

- 2 = user-specified transformation rates used
- 3 = transformation rates computed internally (RIVAD/ARM3 scheme)
- 4 = secondary organic aerosol formation computed (MESOPUFF II scheme for OH)

Aqueous phase transformation flag (MAQCHEM)  
 (Used only if MCHEM = 1, or 3) Default: 0 ! MAQCHEM = 0 !

- 0 = aqueous phase transformation not modeled
- 1 = transformation rates adjusted for aqueous phase reactions

Wet removal modeled ? (MWET) Default: 1 ! MWET = 1 !  
 0 = no  
 1 = yes

Dry deposition modeled ? (MDRY) Default: 1 ! MDRY = 1 !  
 0 = no  
 1 = yes  
 (dry deposition method specified for each species in Input Group 3)

Gravitational settling (plume tilt)  
 modeled ? (MTILT) Default: 0 ! MTILT = 0 !  
 0 = no  
 1 = yes  
 (puff center falls at the gravitational settling velocity for 1 particle species)

Restrictions:  
 - MDRY = 1  
 - NSPEC = 1 (must be particle species as well)  
 - sg = 0 GEOMETRIC STANDARD DEVIATION in Group 8 is set to zero for a single particle diameter

Method used to compute dispersion coefficients (MDISP) Default: 3 ! MDISP = 3 !

- 1 = dispersion coefficients computed from measured values of turbulence, sigma v, sigma w
- 2 = dispersion coefficients from internally calculated sigma v, sigma w using micrometeorological variables (u\*, w\*, L, etc.)
- 3 = PG dispersion coefficients for RURAL areas (computed using the ISCST multi-segment approximation) and MP coefficients in urban areas
- 4 = same as 3 except PG coefficients computed using the MESOPUFF II eqns.
- 5 = CTDM sigmas used for stable and neutral conditions.  
 For unstable conditions, sigmas are computed as in MDISP = 3, described above. MDISP = 5 assumes that measured values are read

Sigma-v/sigma-theta, sigma-w measurements used? (MTURBVW)  
(Used only if MDISP = 1 or 5) Default: 3 ! MTURBVW = 3 !

- 1 = use sigma-v or sigma-theta measurements  
from PROFILE.DAT to compute sigma-y  
(valid for METFM = 1, 2, 3, 4, 5)
- 2 = use sigma-w measurements  
from PROFILE.DAT to compute sigma-z  
(valid for METFM = 1, 2, 3, 4, 5)
- 3 = use both sigma-(v/theta) and sigma-w  
from PROFILE.DAT to compute sigma-y and sigma-z  
(valid for METFM = 1, 2, 3, 4, 5)
- 4 = use sigma-theta measurements  
from PLMMET.DAT to compute sigma-y  
(valid only if METFM = 3)

Back-up method used to compute dispersion  
when measured turbulence data are

missing (MDISP2) Default: 3 ! MDISP2 = 3 !  
(used only if MDISP = 1 or 5)

- 2 = dispersion coefficients from internally calculated  
sigma v, sigma w using micrometeorological variables  
(u\*, w\*, L, etc.)
- 3 = PG dispersion coefficients for RURAL areas (computed using  
the ISCST multi-segment approximation) and MP coefficients in  
urban areas
- 4 = same as 3 except PG coefficients computed using  
the MESOPUFF II eqns.

#### [DIAGNOSTIC FEATURE]

Method used for Lagrangian timescale for Sigma-y

(used only if MDISP=1,2 or MDISP2=1,2)  
(MTAULY) Default: 0 ! MTAULY = 0 !

- 0 = Draxler default 617.284 (s)
- 1 = Computed as Lag. Length / (.75 q) -- after SCIPUFF
- 10 < Direct user input (s) -- e.g., 306.9

#### [DIAGNOSTIC FEATURE]

Method used for Advective-Decay timescale for Turbulence

(used only if MDISP=2 or MDISP2=2)  
(MTAUADV) Default: 0 ! MTAUADV = 0 !

- 0 = No turbulence advection
- 1 = Computed (OPTION NOT IMPLEMENTED)
- 10 < Direct user input (s) -- e.g., 300

Method used to compute turbulence sigma-v &  
sigma-w using micrometeorological variables

(Used only if MDISP = 2 or MDISP2 = 2)  
(MCTURB) Default: 1 ! MCTURB = 1 !

- 1 = Standard CALPUFF subroutines
- 2 = AERMOD subroutines

PG sigma-y,z adj. for roughness? Default: 0 ! MROUGH = 0 !  
(MROUGH)

- 0 = no

1 = yes

Partial plume penetration of  
elevated inversion?  
(MPARTL)

0 = no

1 = yes

Strength of temperature inversion  
provided in PROFILE.DAT extended records?  
(MTINV)

0 = no (computed from measured/default gradients)

1 = yes

PDF used for dispersion under convective conditions?  
(MPDF)

0 = no

1 = yes

Sub-Grid TIBL module used for shore line?  
(MSGTIBL)

0 = no

1 = yes

Boundary conditions (concentration) modeled?  
(MBCON)

0 = no

1 = yes, using formatted BCON.DAT file

2 = yes, using unformatted CONC.DAT file

Note: MBCON > 0 requires that the last species modeled  
be 'BCON'. Mass is placed in species BCON when  
generating boundary condition puffs so that clean  
air entering the modeling domain can be simulated  
in the same way as polluted air. Specify zero  
emission of species BCON for all regular sources.

Individual source contributions saved?  
(MSOURCE)

0 = no

1 = yes

Analyses of fogging and icing impacts due to emissions from  
arrays of mechanically-forced cooling towers can be performed  
using CALPUFF in conjunction with a cooling tower emissions  
processor (CTEMISS) and its associated postprocessors. Hourly  
emissions of water vapor and temperature from each cooling tower  
cell are computed for the current cell configuration and ambient  
conditions by CTEMISS. CALPUFF models the dispersion of these  
emissions and provides cloud information in a specialized format  
for further analysis. Output to FOG.DAT is provided in either

'plume mode' or 'receptor mode' format.

Configure for FOG Model output?

Default: 0 ! MFOG = 0 !

(MFOG)

0 = no

1 = yes - report results in PLUME Mode format

2 = yes - report results in RECEPTOR Mode format

Test options specified to see if

they conform to regulatory

values? (MREG)

Default: 1 ! MREG = 1 !

0 = NO checks are made

1 = Technical options must conform to USEPA

Long Range Transport (LRT) guidance

METFM 1 or 2

AVET 60. (min)

PGTIME 60. (min)

MGAUSS 1

MCTADJ 3

MTRANS 1

MTIP 1

MCHEM 1 or 3 (if modeling SOx, NOx)

MWET 1

MDRY 1

MDISP 2 or 3

MPDF 0 if MDISP=3

1 if MDISP=2

MROUGH 0

MPARTL 1

SYTDEP 550. (m)

MHFTSZ 0

SVMIN 0.5 (m/s)

!END!

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INPUT GROUP: 3a, 3b -- Species list

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Subgroup (3a)

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The following species are modeled:

! CSPEC = SO2 ! !END!  
! CSPEC = SO4 ! !END!  
! CSPEC = NOX ! !END!  
! CSPEC = HNO3 ! !END!  
! CSPEC = NO3 ! !END!

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! CSPEC =    PMC !    !END!
! CSPEC =    PMF !    !END!
! CSPEC =    EC !    !END!
! CSPEC =    SOA !    !END!
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SPECIES NAME (Limit: 12 Characters in length)	MODELED (0=NO, 1=YES)	Dry EMITTED (0=NO, 1=YES)	OUTPUT GROUP DEPOSITED (0=NO, 1=COMPUTED-GAS 2=COMPUTED-PARTICLE 3=USER-SPECIFIED)	NUMBER (0=NONE, 1=1st CGRUP, 2=2nd CGRUP, 3= etc.)
! SO2 =	1,	1,	1,	0 !
! SO4 =	1,	1,	2,	0 !
! NOX =	1,	1,	1,	0 !
! HNO3 =	1,	0,	1,	0 !
! NO3 =	1,	0,	2,	0 !
! PMC =	1,	1,	2,	0 !
! PMF =	1,	1,	2,	0 !
! EC =	1,	1,	2,	0 !
! SOA =	1,	1,	2,	0 !

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!END!
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Note: The last species in (3a) must be 'BCON' when using the boundary condition option (MBCON > 0). Species BCON should typically be modeled as inert (no chem transformation or removal).

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#### Subgroup (3b)

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The following names are used for Species-Groups in which results for certain species are combined (added) prior to output. The CGRUP name will be used as the species name in output files. Use this feature to model specific particle-size distributions by treating each size-range as a separate species. Order must be consistent with 3(a) above.

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#### INPUT GROUP: 4 -- Map Projection and Grid control parameters

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Projection for all (X,Y):

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Map projection  
(PMAP)              Default: UTM   ! PMAP = LCC !

UTM : Universal Transverse Mercator  
TTM : Tangential Transverse Mercator

LCC : Lambert Conformal Conic  
PS : Polar Stereographic  
EM : Equatorial Mercator  
LAZA : Lambert Azimuthal Equal Area

False Easting and Northing (km) at the projection origin  
(Used only if PMAP= TTM, LCC, or LAZA)  
(FEAST) Default=0.0 ! FEAST = 0.000 !  
(FNORTH) Default=0.0 ! FNORTH = 0.000 !

UTM zone (1 to 60)  
(Used only if PMAP=UTM)  
(IUTMZN) No Default ! IUTMZN = -999 !

Hemisphere for UTM projection?  
(Used only if PMAP=UTM)  
(UTMHEM) Default: N ! UTMHEM = N !  
N : Northern hemisphere projection  
S : Southern hemisphere projection

Latitude and Longitude (decimal degrees) of projection origin  
(Used only if PMAP= TTM, LCC, PS, EM, or LAZA)  
(RLAT0) No Default ! RLAT0 = 40N !  
(RLON0) No Default ! RLON0 = 97W !

TTM : RLON0 identifies central (true N/S) meridian of projection  
RLAT0 selected for convenience  
LCC : RLON0 identifies central (true N/S) meridian of projection  
RLAT0 selected for convenience  
PS : RLON0 identifies central (grid N/S) meridian of projection  
RLAT0 selected for convenience  
EM : RLON0 identifies central meridian of projection  
RLAT0 is REPLACED by 0.0N (Equator)  
LAZA: RLON0 identifies longitude of tangent-point of mapping plane  
RLAT0 identifies latitude of tangent-point of mapping plane

Matching parallel(s) of latitude (decimal degrees) for projection  
(Used only if PMAP= LCC or PS)  
(XLAT1) No Default ! XLAT1 = 33N !  
(XLAT2) No Default ! XLAT2 = 45N !

LCC : Projection cone slices through Earth's surface at XLAT1 and XLAT2  
PS : Projection plane slices through Earth at XLAT1  
(XLAT2 is not used)

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Note: Latitudes and longitudes should be positive, and include a letter N,S,E, or W indicating north or south latitude, and east or west longitude. For example,  
35.9 N Latitude = 35.9N  
118.7 E Longitude = 118.7E

Datum-region

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The Datum-Region for the coordinates is identified by a character string. Many mapping products currently available use the model of the Earth known as the World Geodetic System 1984 (WGS-84). Other local models may be in use, and their selection in CALMET will make its output consistent with local mapping products. The list of Datum-Regions with official transformation parameters is provided by the National Imagery and Mapping Agency (NIMA).

#### NIMA Datum - Regions(Examples)

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WGS-84 WGS-84 Reference Ellipsoid and Geoid, Global coverage (WGS84)  
NAS-C NORTH AMERICAN 1927 Clarke 1866 Spheroid, MEAN FOR CONUS (NAD27)  
NAR-C NORTH AMERICAN 1983 GRS 80 Spheroid, MEAN FOR CONUS (NAD83)  
NWS-84 NWS 6370KM Radius, Sphere  
ESR-S ESRI REFERENCE 6371KM Radius, Sphere

Datum-region for output coordinates

(DATUM) Default: WGS-84 ! DATUM = WGS-G !

#### METEOROLOGICAL Grid:

Rectangular grid defined for projection PMAP,  
with X the Easting and Y the Northing coordinate

No. X grid cells (NX) No default ! NX = 306 !  
No. Y grid cells (NY) No default ! NY = 246 !  
No. vertical layers (NZ) No default ! NZ = 10 !

Grid spacing (DGRIDKM) No default ! DGRIDKM = 6.0 !  
Units: km

Cell face heights  
(ZFACE(nz+1)) No defaults  
Units: m  
! ZFACE = 0.,20.,40.,80.,160.,320.,640.,1200.,2000.,3000.,4000. !

Reference Coordinates  
of SOUTHWEST corner of  
grid cell(1, 1):

X coordinate (XORIGKM) No default ! XORIGKM = -1008 !  
Y coordinate (YORIGKM) No default ! YORIGKM = -1620 !  
Units: km

#### COMPUTATIONAL Grid:

The computational grid is identical to or a subset of the MET. grid.  
The lower left (LL) corner of the computational grid is at grid point  
(IBCOMP, JBCOMP) of the MET. grid. The upper right (UR) corner of the  
computational grid is at grid point (IECOMP, JECOMP) of the MET. grid.  
The grid spacing of the computational grid is the same as the MET. grid.

X index of LL corner (IBCOMP) No default ! IBCOMP = 1 !  
(1 <= IBCOMP <= NX)

Y index of LL corner (JBCOMP) No default ! JBCOMP = 1 !  
(1 <= JBCOMP <= NY)

X index of UR corner (IECOMP) No default ! IECOMP = 306 !  
(1 <= IECOMP <= NX)

Y index of UR corner (JECOMP) No default ! JECOMP = 246 !  
(1 <= JECOMP <= NY)

#### SAMPLING Grid (GRIDDED RECEPTORS):

The lower left (LL) corner of the sampling grid is at grid point (IBSAMP, JBSAMP) of the MET. grid. The upper right (UR) corner of the sampling grid is at grid point (IESAMP, JESAMP) of the MET. grid.  
The sampling grid must be identical to or a subset of the computational grid. It may be a nested grid inside the computational grid.  
The grid spacing of the sampling grid is DGRIDKM/MESHDN.

Logical flag indicating if gridded receptors are used (LSAMP) Default: T ! LSAMP = F !  
(T=yes, F=no)

X index of LL corner (IBSAMP) No default ! IBSAMP = 1 !  
(IBCOMP <= IBSAMP <= IECOMP)

Y index of LL corner (JBSAMP) No default ! JBSAMP = 1 !  
(JBCOMP <= JBSAMP <= JECOMP)

X index of UR corner (IESAMP) No default ! IESAMP = 306 !  
(IBCOMP <= IESAMP <= IECOMP)

Y index of UR corner (JESAMP) No default ! JESAMP = 246 !  
(JBCOMP <= JESAMP <= JECOMP)

Nesting factor of the sampling grid (MESHDN) Default: 1 ! MESHDN = 1 !  
(MESHDN is an integer >= 1)

!END!

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#### INPUT GROUP: 5 -- Output Options

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FILE	DEFAULT VALUE	VALUE THIS RUN
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Concentrations (ICON)        1        ! ICON = 1 !  
Dry Fluxes (IDRY)        1        ! IDRY = 1 !  
Wet Fluxes (IWET)        1        ! IWET = 1 !  
2D Temperature (IT2D)        0        ! IT2D = 0 !  
2D Density (IRHO)        0        ! IRHO = 0 !  
Relative Humidity (IVIS)  
(relative humidity file is  
required for visibility  
analysis)  
Use data compression option in output file?  
(LCOMPRS)                  Default: T        ! LCOMPRS = T !

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0 = Do not create file, 1 = create file

#### QA PLOT FILE OUTPUT OPTION:

Create a standard series of output files (e.g.  
locations of sources, receptors, grids ...)  
suitable for plotting?  
(IQAPLOT)                  Default: 1        ! IQAPLOT = 1 !  
0 = no  
1 = yes

#### DIAGNOSTIC MASS FLUX OUTPUT OPTIONS:

Mass flux across specified boundaries  
for selected species reported hourly?  
(IMFLX)                  Default: 0        ! IMFLX = 0 !  
0 = no  
1 = yes (FLUXBDY.DAT and MASSFLX.DAT filenames  
are specified in Input Group 0)

Mass balance for each species  
reported hourly?  
(IMBAL)                  Default: 0        ! IMBAL = 0 !  
0 = no  
1 = yes (MASSBAL.DAT filename is  
specified in Input Group 0)

#### LINE PRINTER OUTPUT OPTIONS:

Print concentrations (ICPRT)    Default: 0        ! ICPRT = 1 !  
Print dry fluxes (IDPRT)    Default: 0        ! IDPRT = 0 !  
Print wet fluxes (IWPRT)    Default: 0        ! IWPRT = 0 !  
(0 = Do not print, 1 = Print)

Concentration print interval  
(ICFRQ) in hours            Default: 1        ! ICFRQ = 1 !  
Dry flux print interval  
(IDFRQ) in hours            Default: 1        ! IDFRQ = 1 !  
Wet flux print interval  
(IWFRQ) in hours            Default: 1        ! IWFRQ = 1 !

Units for Line Printer Output  
 (IPRTU) Default: 1 ! IPRTU = 3 !  
 for for  
 Concentration Deposition  
 1 = g/m\*\*3 g/m\*\*2/s  
 2 = mg/m\*\*3 mg/m\*\*2/s  
 3 = ug/m\*\*3 ug/m\*\*2/s  
 4 = ng/m\*\*3 ng/m\*\*2/s  
 5 = Odour Units

Messages tracking progress of run  
 written to the screen ?  
 (IMESG) Default: 2 ! IMESG = 2 !  
 0 = no  
 1 = yes (advection step, puff ID)  
 2 = yes (YYYYJJJHH, # old puffs, # emitted puffs)

#### SPECIES (or GROUP for combined species) LIST FOR OUTPUT OPTIONS

FLUX --	--- CONCENTRATIONS ---		----- DRY FLUXES -----		----- WET FLUXES -----		-- MASS
SPECIES	/GROUP	PRINTED?	SAVED ON DISK?	PRINTED?	SAVED ON DISK?	PRINTED?	SAVED ON DISK?
!	SO2 =	0,	1,	0,	1,	0,	1, !
!	SO4 =	0,	1,	0,	1,	0,	1, !
!	NOX =	0,	1,	0,	1,	0,	1, !
!	HNO3 =	0,	1,	0,	1,	0,	1, !
!	NO3 =	0,	1,	0,	1,	0,	1, !
!	PMC =	0,	1,	0,	1,	0,	1, !
!	PMF =	0,	1,	0,	1,	0,	1, !
!	EC =	0,	1,	0,	1,	0,	1, !
!	SOA =	0,	1,	0,	1,	0,	1, !

Note: Species BCON (for MBCON > 0) does not need to be saved on disk.

#### OPTIONS FOR PRINTING "DEBUG" QUANTITIES (much output)

Logical for debug output  
 (LDEBUG) Default: F ! LDEBUG = F !

First puff to track  
 (IPFDEB) Default: 1 ! IPFDEB = 1 !

Number of puffs to track  
 (NPFDDEB) Default: 1 ! NPFDDEB = 1 !

Met. period to start output  
 (NN1) Default: 1 ! NN1 = 1 !

Met. period to end output  
 (NN2) Default: 10 ! NN2 = 10 !

!END!

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INPUT GROUP: 6a, 6b, & 6c -- Subgrid scale complex terrain inputs

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Subgroup (6a)  
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Number of terrain features (NHILL) Default: 0 ! NHILL = 0 !

Number of special complex terrain receptors (NCTREC) Default: 0 ! NCTREC = 0 !

Terrain and CTSG Receptor data for  
CTSG hills input in CTDM format ?

(MHILL) No Default ! MHILL = 2 !

1 = Hill and Receptor data created  
by CTDM processors & read from  
HILL.DAT and HILLRCT.DAT files

2 = Hill data created by OPTHILL &  
input below in Subgroup (6b);  
Receptor data in Subgroup (6c)

Factor to convert horizontal dimensions Default: 1.0 ! XHILL2M = 1.0 !  
to meters (MHILL=1)

Factor to convert vertical dimensions Default: 1.0 ! ZHILL2M = 1.0 !  
to meters (MHILL=1)

X-origin of CTDM system relative to No Default ! XCTDMKM = 0 !  
CALPUFF coordinate system, in Kilometers (MHILL=1)

Y-origin of CTDM system relative to No Default ! YCTDMKM = 0 !  
CALPUFF coordinate system, in Kilometers (MHILL=1)

! END !

-----  
Subgroup (6b)  
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1 \*\*  
HILL information

HILL	XC	YC	THETAH	ZGRID	RELIEF	EXPO 1	EXPO 2	SCALE 1	SCALE 2
AMAX1	AMAX2								
NO.	(km)	(km)	(deg.)	(m)	(m)	(m)	(m)	(m)	(m)
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Subgroup (6c)

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## COMPLEX TERRAIN RECEPTOR INFORMATION

XRCT (km)	YRCT (km)	ZRCT (m)	XHH
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Description of Complex Terrain Variables:

XC, YC = Coordinates of center of hill  
THETAH = Orientation of major axis of hill (clockwise from North)  
ZGRID = Height of the 0 of the grid above mean sea level  
RELIEF = Height of the crest of the hill above the grid elevation  
EXPO 1 = Hill-shape exponent for the major axis  
EXPO 2 = Hill-shape exponent for the minor axis  
SCALE 1 = Horizontal length scale along the major axis  
SCALE 2 = Horizontal length scale along the minor axis  
AMAX = Maximum allowed axis length for the major axis  
BMAX = Maximum allowed axis length for the minor axis

XRCT, YRCT = Coordinates of the complex terrain receptors  
ZRCT = Height of the ground (MSL) at the complex terrain Receptor  
XHH = Hill number associated with each complex terrain receptor  
(NOTE: MUST BE ENTERED AS A REAL NUMBER)

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NOTE: DATA for each hill and CTSG receptor are treated as a separate input subgroup and therefore must end with an input group terminator.

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## INPUT GROUP: 7 -- Chemical parameters for dry deposition of gases

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SPECIES HENRY'S LAW COEFFICIENT	DIFFUSIVITY NAME	ALPHA STAR (cm**2/s)	REACTIVITY (s/cm)	MESOPHYLL RESISTANCE (dimensionless)
!	SO2 =	.1509,	1000.0,	8.0, .0, .04 !
!	NOX =	.1656,	1.0,	8.0, 5.0, 3.5 !
!	HNO3 =	.1628,	1.0,	18.0, .0, .00000008 !

---

!END!

---

INPUT GROUP: 8 -- Size parameters for dry deposition of particles

---

For SINGLE SPECIES, the mean and standard deviation are used to compute a deposition velocity for NINT (see group 9) size-ranges, and these are then averaged to obtain a mean deposition velocity.

For GROUPED SPECIES, the size distribution should be explicitly specified (by the 'species' in the group), and the standard deviation for each should be entered as 0. The model will then use the deposition velocity for the stated mean diameter.

SPECIES NAME	GEOMETRIC MASS MEAN DIAMETER (microns)	GEOMETRIC STANDARD DEVIATION (microns)
! SO4 =	.48,	2.0 !
! NO3 =	.48,	2.0 !
! PMC =	6.0,	2.0 !
! PMF =	.48,	2.0 !
! EC =	.48,	2.0 !
! SOA =	.48,	2.0 !

!END!

---

INPUT GROUP: 9 -- Miscellaneous dry deposition parameters

---

Reference cuticle resistance (s/cm)  
(RCUTR) Default: 30 ! RCUTR = 30.0 !  
Reference ground resistance (s/cm)  
(RGR) Default: 10 ! RGR = 10.0 !  
Reference pollutant reactivity  
(REACTR) Default: 8 ! REACTR = 8.0 !

Number of particle-size intervals used to evaluate effective particle deposition velocity  
(NINT) Default: 9 ! NINT = 9 !

Vegetation state in unirrigated areas  
(IVEG) Default: 1 ! IVEG = 1 !  
IVEG=1 for active and unstressed vegetation  
IVEG=2 for active and stressed vegetation  
IVEG=3 for inactive vegetation

!END!

---

INPUT GROUP: 10 -- Wet Deposition Parameters

-----  
Scavenging Coefficient -- Units: (sec)\*\*(-1)

Pollutant	Liquid Precip.	Frozen Precip.
! SO2 =	3.21E-05,	0.0E00 !
! SO4 =	1.0E-04,	3.0E-05 !
! HNO3 =	6.0E-05,	0.0E00 !
! NO3 =	1.0E-04,	3.0E-05 !
! PMC =	1.0E-04,	3.0E-05 !
! PMF =	1.0E-04,	3.0E-05 !
! EC =	1.0E-04,	3.0E-05 !
! SOA =	1.0E-04,	3.0E-05 !

!END!

-----

INPUT GROUP: 11 -- Chemistry Parameters

-----

Ozone data input option (MOZ) Default: 1 ! MOZ = 1 !  
(Used only if MCHEM = 1, 3, or 4)

0 = use a monthly background ozone value  
1 = read hourly ozone concentrations from  
the OZONE.DAT data file

Monthly ozone concentrations

(Used only if MCHEM = 1, 3, or 4 and  
MOZ = 0 or MOZ = 1 and all hourly O3 data missing)

(BCKO3) in ppb Default: 12\*80.

! BCKO3 = 40.00, 40.00, 40.00, 40.00, 40.00, 40.00, 40.00, 40.00, 40.00, 40.00, 40.00 !

Monthly ammonia concentrations

(Used only if MCHEM = 1, or 3)

(BCKNH3) in ppb Default: 12\*10.

! BCKNH3 = 3.00, 3.00, 3.00, 3.00, 3.00, 3.00, 3.00, 3.00, 3.00, 3.00, 3.00 !

Nighttime SO2 loss rate (RNITE1)

in percent/hour Default: 0.2 ! RNITE1 = .2 !

Nighttime NOx loss rate (RNITE2)

in percent/hour Default: 2.0 ! RNITE2 = 2.0 !

Nighttime HNO3 formation rate (RNITE3)

in percent/hour Default: 2.0 ! RNITE3 = 2.0 !

H2O2 data input option (MH2O2) Default: 1 ! MH2O2 = 1 !

(Used only if MAQCHEM = 1)

0 = use a monthly background H2O2 value  
1 = read hourly H2O2 concentrations from  
the H2O2.DAT data file

Monthly H<sub>2</sub>O<sub>2</sub> concentrations

(Used only if MQACHEM = 1 and

MH<sub>2</sub>O<sub>2</sub> = 0 or MH<sub>2</sub>O<sub>2</sub> = 1 and all hourly H<sub>2</sub>O<sub>2</sub> data missing)

(BCKH<sub>2</sub>O<sub>2</sub>) in ppb      Default: 12\*1.

! BCKH<sub>2</sub>O<sub>2</sub> = 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00 !

--- Data for SECONDARY ORGANIC AEROSOL (SOA) Option

(used only if MCHEM = 4)

The SOA module uses monthly values of:

Fine particulate concentration in ug/m<sup>3</sup> (BCKPMF)

Organic fraction of fine particulate (OFRAC)

VOC / NOX ratio (after reaction) (VCNX)

to characterize the air mass when computing

the formation of SOA from VOC emissions.

Typical values for several distinct air mass types are:

Month	1	2	3	4	5	6	7	8	9	10	11	12
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Clean Continental

BCKPMF 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.

OFRAC .15 .15 .20 .20 .20 .20 .20 .20 .20 .20 .20 .15

VCNX 50. 50. 50. 50. 50. 50. 50. 50. 50. 50. 50. 50.

Clean Marine (surface)

BCKPMF .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5

OFRAC .25 .25 .30 .30 .30 .30 .30 .30 .30 .30 .25

VCNX 50. 50. 50. 50. 50. 50. 50. 50. 50. 50. 50.

Urban - low biogenic (controls present)

BCKPMF 30. 30. 30. 30. 30. 30. 30. 30. 30. 30. 30.

OFRAC .20 .20 .25 .25 .25 .25 .25 .20 .20 .20 .20

VCNX 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.

Urban - high biogenic (controls present)

BCKPMF 60. 60. 60. 60. 60. 60. 60. 60. 60. 60. 60.

OFRAC .25 .25 .30 .30 .30 .55 .55 .35 .35 .35 .25

VCNX 15. 15. 15. 15. 15. 15. 15. 15. 15. 15. 15.

Regional Plume

BCKPMF 20. 20. 20. 20. 20. 20. 20. 20. 20. 20. 20.

OFRAC .20 .20 .25 .35 .25 .40 .40 .40 .30 .30 .20

VCNX 15. 15. 15. 15. 15. 15. 15. 15. 15. 15.

Urban - no controls present

BCKPMF 100. 100. 100. 100. 100. 100. 100. 100. 100. 100.

OFRAC .30 .30 .35 .35 .55 .55 .35 .35 .35 .30

VCNX 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.

Default: Clean Continental

! BCKPMF = 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00 !

! OFRAC = 0.15, 0.15, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.15 !

! VCNX = 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00 !

!END!

---

INPUT GROUP: 12 -- Misc. Dispersion and Computational Parameters

---

Horizontal size of puff (m) beyond which  
time-dependent dispersion equations (Heffter)  
are used to determine sigma-y and  
sigma-z (SYTDEP) Default: 550. ! SYTDEP = 5.5E02 !

Switch for using Heffter equation for sigma z  
as above (0 = Not use Heffter; 1 = use Heffter  
(MHFTSZ) Default: 0 ! MHFTSZ = 0 !

Stability class used to determine plume  
growth rates for puffs above the boundary  
layer (JSUP) Default: 5 ! JSUP = 5 !

Vertical dispersion constant for stable  
conditions (k1 in Eqn. 2.7-3) (CONK1) Default: 0.01 ! CONK1 = .01 !

Vertical dispersion constant for neutral/  
unstable conditions (k2 in Eqn. 2.7-4)  
(CONK2) Default: 0.1 ! CONK2 = .1 !

Factor for determining Transition-point from  
Schulman-Scire to Huber-Snyder Building Downwash  
scheme (SS used for Hs < Hb + TBD \* HL)  
(TBD) Default: 0.5 ! TBD = .5 !  
TBD < 0 ==> always use Huber-Snyder  
TBD = 1.5 ==> always use Schulman-Scire  
TBD = 0.5 ==> ISC Transition-point

Range of land use categories for which  
urban dispersion is assumed  
(IURB1, IURB2) Default: 10 ! IURB1 = 10 !  
19 ! IURB2 = 19 !

Site characterization parameters for single-point Met data files -----  
(needed for METFM = 2,3,4,5)

Land use category for modeling domain  
(ILANDUIN) Default: 20 ! ILANDUIN = 20 !

Roughness length (m) for modeling domain  
(Z0IN) Default: 0.25 ! Z0IN = .25 !

Leaf area index for modeling domain  
(XLAIIN) Default: 3.0 ! XLAIIN = 3.0 !

Elevation above sea level (m)  
(ELEVIN) Default: 0.0 ! ELEVIN = .0 !

Latitude (degrees) for met location  
(XLATIN) Default: -999. ! XLATIN = -999.0 !

Longitude (degrees) for met location  
(XLONIN) Default: -999. ! XLONIN = -999.0 !

Specialized information for interpreting single-point Met data files -----

Anemometer height (m) (Used only if METFM = 2,3)  
(ANEMHT) Default: 10. ! ANEMHT = 10.0 !

Form of lateral turbulence data in PROFILE.DAT file  
(Used only if METFM = 4,5 or MTURBVW = 1 or 3)  
(ISIGMAV) Default: 1 ! ISIGMAV = 1 !  
0 = read sigma-theta  
1 = read sigma-v

Choice of mixing heights (Used only if METFM = 4)  
(IMIXCTDM) Default: 0 ! IMIXCTDM = 0 !  
0 = read PREDICTED mixing heights  
1 = read OBSERVED mixing heights

Maximum length of a slug (met. grid units)  
(XMXLEN) Default: 1.0 ! XMXLEN = 1.0 !

Maximum travel distance of a puff/slug (in  
grid units) during one sampling step  
(XSAMLEN) Default: 1.0 ! XSAMLEN = 10.0 !

Maximum Number of slugs/puffs release from  
one source during one time step  
(MXNEW) Default: 99 ! MXNEW = 60 !

Maximum Number of sampling steps for  
one puff/slug during one time step  
(MXSAM) Default: 99 ! MXSAM = 60 !

Number of iterations used when computing  
the transport wind for a sampling step  
that includes gradual rise (for CALMET  
and PROFILE winds)  
(NCOUNT) Default: 2 ! NCOUNT = 2 !

Minimum sigma y for a new puff/slug (m)  
(SYMIN) Default: 1.0 ! SYMIN = 1.0 !

Minimum sigma z for a new puff/slug (m)  
(SZMIN) Default: 1.0 ! SZMIN = 1.0 !

Default minimum turbulence velocities sigma-v and sigma-w  
for each stability class over land and over water (m/s)  
(SVMIN(12) and SWMIN(12))

----- LAND ----- ----- WATER -----  
Stab Class : A B C D E F A B C D E F

Default SVMIN : .50, .50, .50, .50, .50, .50, .50, .50, .50, .50, .50, .50  
Default SWMIN : .20, .12, .08, .06, .03, .016, .20, .12, .08, .06, .03, .016

! SVMIN = 0.500, 0.500, 0.500, 0.500, 0.500, 0.500, 0.500, 0.500, 0.500, 0.500, 0.500, 0.500!  
! SWMIN = 0.200, 0.120, 0.080, 0.060, 0.030, 0.016, 0.200, 0.120, 0.080, 0.060, 0.030, 0.016!

Divergence criterion for dw/dz across puff  
used to initiate adjustment for horizontal  
convergence (1/s)  
Partial adjustment starts at CDIV(1), and  
full adjustment is reached at CDIV(2)  
(CDIV(2)) Default: 0.0,0.0 ! CDIV = .0, .0 !

Minimum wind speed (m/s) allowed for  
non-calm conditions. Also used as minimum  
speed returned when using power-law  
extrapolation toward surface  
(WSCALM) Default: 0.5 ! WSCALM = .5 !

Maximum mixing height (m)  
(XMAXZI) Default: 3000. ! XMAXZI = 3000.0 !

Minimum mixing height (m)  
(XMINZI) Default: 50. ! XMINZI = 20.0 !

Default wind speed classes --  
5 upper bounds (m/s) are entered;  
the 6th class has no upper limit  
(WSCAT(5)) Default :  
ISC RURAL : 1.54, 3.09, 5.14, 8.23, 10.8 (10.8+)

Wind Speed Class : 1 2 3 4 5

! WSCAT = 1.54, 3.09, 5.14, 8.23, 10.80 !

Default wind speed profile power-law  
exponents for stabilities 1-6  
(PLX0(6)) Default : ISC RURAL values  
ISC RURAL : .07, .07, .10, .15, .35, .55  
ISC URBAN : .15, .15, .20, .25, .30, .30

Stability Class : A B C D E F

! PLX0 = 0.07, 0.07, 0.10, 0.15, 0.35, 0.55 !

Default potential temperature gradient  
for stable classes E, F (degK/m)  
(PTG0(2)) Default: 0.020, 0.035  
! PTG0 = 0.020, 0.035 !

Default plume path coefficients for  
each stability class (used when option  
for partial plume height terrain adjustment

is selected -- MCTADJ=3)  
(PPC(6))              Stability Class : A    B    C    D    E    F  
                        Default PPC : .50, .50, .50, .50, .35, .35  
-----  
! PPC = 0.50, 0.50, 0.50, 0.50, 0.35, 0.35 !

Slug-to-puff transition criterion factor  
equal to sigma-y/length of slug  
(SL2PF)              Default: 10.       ! SL2PF = 10.0 !

Puff-splitting control variables -----

#### VERTICAL SPLIT

Number of puffs that result every time a puff  
is split - nsplit=2 means that 1 puff splits  
into 2  
(NSPLIT)              Default: 3       ! NSPLIT = 3 !

Time(s) of a day when split puffs are eligible to  
be split once again; this is typically set once  
per day, around sunset before nocturnal shear develops.  
24 values: 0 is midnight (00:00) and 23 is 11 PM (23:00)  
0=do not re-split 1=eligible for re-split  
(IRESPLIT(24))       Default: Hour 17 = 1  
! IRESPLIT = 0,0 !

Split is allowed only if last hour's mixing  
height (m) exceeds a minimum value  
(ZISPLIT)              Default: 100.       ! ZISPLIT = 100.0 !

Split is allowed only if ratio of last hour's  
mixing ht to the maximum mixing ht experienced  
by the puff is less than a maximum value (this  
postpones a split until a nocturnal layer develops)  
(ROLDMAX)              Default: 0.25       ! ROLDMAX = 0.25 !

#### HORIZONTAL SPLIT

Number of puffs that result every time a puff  
is split - nsplith=5 means that 1 puff splits  
into 5  
(NSPLITH)              Default: 5       ! NSPLITH = 5 !

Minimum sigma-y (Grid Cells Units) of puff  
before it may be split  
(SYSPLITH)              Default: 1.0       ! SYSPLITH = 1.0 !

Minimum puff elongation rate (SYSPLITH/hr) due to  
wind shear, before it may be split  
(SHSPLITH)              Default: 2.       ! SHSPLITH = 2.0 !

Minimum concentration (g/m<sup>3</sup>) of each species in puff before it may be split  
Enter array of NSPEC values; if a single value is entered, it will be used for ALL species  
(CNSPLITH) Default: 1.0E-07 ! CNSPLITH = 1.0E-07 !

Integration control variables -----

Fractional convergence criterion for numerical SLUG sampling integration  
(EPSSLUG) Default: 1.0e-04 ! EPSSLUG = 1.0E-04 !

Fractional convergence criterion for numerical AREA source integration  
(EPSAREA) Default: 1.0e-06 ! EPSAREA = 1.0E-06 !

Trajectory step-length (m) used for numerical rise integration  
(DSRISE) Default: 1.0 ! DSRISE = 1.0 !

Boundary Condition (BC) Puff control variables -----

Minimum height (m) to which BC puffs are mixed as they are emitted (MBCON=2 ONLY). Actual height is reset to the current mixing height at the release point if greater than this minimum.  
(HTMINBC) Default: 500. ! HTMINBC = 500.0 !

Search radius (km) about a receptor for sampling nearest BC puff. BC puffs are typically emitted with a spacing of one grid cell length, so the search radius should be greater than DGRIDKM.  
(RSAMPBC) Default: 10. ! RSAMPBC = 10.0 !

Near-Surface depletion adjustment to concentration profile used when sampling BC puffs?  
(MDEPBC) Default: 1 ! MDEPBC = 1 !  
0 = Concentration is NOT adjusted for depletion  
1 = Adjust Concentration for depletion

!END!

---

INPUT GROUPS: 13a, 13b, 13c, 13d -- Point source parameters

---

---

Subgroup (13a)

---

Number of point sources with parameters provided below (NPT1) No default ! NPT1 = 2 !

Units used for point source emissions below (IPTU) Default: 1 ! IPTU = 3 !

1 = g/s  
 2 = kg/hr  
 3 = lb/hr  
 4 = tons/yr  
 5 = Odour Unit \* m\*\*3/s (vol. flux of odour compound)  
 6 = Odour Unit \* m\*\*3/min  
 7 = metric tons/yr

Number of source-species  
 combinations with variable  
 emissions scaling factors  
 provided below in (13d) (NSPT1) Default: 0 ! NSPT1 = 0 !

Number of point sources with  
 variable emission parameters  
 provided in external file (NPT2) No default ! NPT2 = 0 !

(If NPT2 > 0, these point  
 source emissions are read from  
 the file: PTEMARB.DAT)

!END!

---

Subgroup (13b)

---

a

POINT SOURCE: CONSTANT DATA

---

b c

Source No.	X Coordinate (km)	Y Coordinate (km)	Stack Height (m)	Base Elevation (m)	Stack Diameter (m)	Exit Vel. (m/s)	Bldg. Temp. (deg. K)	Emission Rates
------------	-------------------	-------------------	------------------	--------------------	--------------------	-----------------	----------------------	----------------

1 ! SRCNAM = Unit 1 !

1 ! X = 408.486, -942.4, 59.74, 34.14, 5.151, 22.742, 414.82, 0,  
 3354.3, 54.9, 1321.5, 0, 0, 48.9, 121.8, 9.7, 9.7 !

1 ! ZPLTFM = 0 !

1 ! FMFAC = 1 !

1 ! END !

2 ! SRCNAM = Unit 2 !

2 ! X = 408.412, -942.286, 81.08, 34.16, 5.486, 36.271, 425.93, 0,  
 5494.9, 71.0, 2924.0, 0, 0, 56.0, 43.2, 1.7, 17.7 !

2 ! ZPLTFM = 0 !

2 ! FMFAC = 1 !

2 ! END !

---

a

Data for each source are treated as a separate input subgroup  
 and therefore must end with an input group terminator.

SRCNAM is a 12-character name for a source

(No default)

X is an array holding the source data listed by the column headings

(No default)

SIGYZI is an array holding the initial sigma-y and sigma-z (m)

(Default: 0.,0.)

ZPLTFM is the platform height (m) for sources influenced by an isolated structure that has a significant open area between the surface and the bulk of the structure, such as an offshore oil platform. The Base Elevation is that of the surface (ground or ocean), and the Stack Height is the release height above the Base (not above the platform). Building heights entered in Subgroup 13c must be those of the buildings on the platform, measured from the platform deck. ZPLTFM is used only with MBDW=1 (ISC downwash method) for sources with building downwash.

(Default: 0.0)

FMFAC is a vertical momentum flux factor (0. or 1.0) used to represent the effect of rain-caps or other physical configurations that reduce momentum rise associated with the actual exit velocity.

(Default: 1.0 -- full momentum used)

b

0. = No building downwash modeled

1. = Downwash modeled for buildings resting on the surface

2. = Downwash modeled for buildings raised above the surface (ZPLTFM > 0.)

NOTE: must be entered as a REAL number (i.e., with decimal point)

c

An emission rate must be entered for every pollutant modeled.

Enter emission rate of zero for secondary pollutants that are

modeled, but not emitted. Units are specified by IPTU

(e.g. 1 for g/s).

---

#### Subgroup (13c)

---

#### BUILDING DIMENSION DATA FOR SOURCES SUBJECT TO DOWNWASH

---

Source

a

No. Effective building height, width, length and X/Y offset (in meters)  
every 10 degrees. LENGTH, XBADJ, and YBADJ are only needed for  
MBDW=2 (PRIME downwash option)

---

a

Building height, width, length, and X/Y offset from the source are treated as a separate input subgroup for each source and therefore must end with an input group terminator. The X/Y offset is the position, relative to the stack, of the center of the upwind face of the projected building, with the x-axis pointing along the flow direction.

---

#### Subgroup (13d)

---

a

## POINT SOURCE: VARIABLE EMISSIONS DATA

---

Use this subgroup to describe temporal variations in the emission rates given in 13b. Factors entered multiply the rates in 13b.  
Skip sources here that have constant emissions. For more elaborate variation in source parameters, use PTEMARB.DAT and NPT2 > 0.

IVARY determines the type of variation, and is source-specific:

(IVARY) Default: 0

- 0 = Constant
- 1 = Diurnal cycle (24 scaling factors: hours 1-24)
- 2 = Monthly cycle (12 scaling factors: months 1-12)
- 3 = Hour & Season (4 groups of 24 hourly scaling factors, where first group is DEC-JAN-FEB)
- 4 = Speed & Stab. (6 groups of 6 scaling factors, where first group is Stability Class A, and the speed classes have upper bounds (m/s) defined in Group 12)
- 5 = Temperature (12 scaling factors, where temperature classes have upper bounds (C) of:  
0, 5, 10, 15, 20, 25, 30, 35, 40,  
45, 50, 50+)

---

a

Data for each species are treated as a separate input subgroup and therefore must end with an input group terminator.

---

## INPUT GROUPS: 14a, 14b, 14c, 14d -- Area source parameters

---

---

### Subgroup (14a)

---

Number of polygon area sources with  
parameters specified below (NAR1) No default ! NAR1 = 0 !

Units used for area source  
emissions below (IARU) Default: 1 ! IARU = 1 !

- 1 = g/m\*\*2/s
- 2 = kg/m\*\*2/hr
- 3 = lb/m\*\*2/hr
- 4 = tons/m\*\*2/yr
- 5 = Odour Unit \* m/s (vol. flux/m\*\*2 of odour compound)
- 6 = Odour Unit \* m/min
- 7 = metric tons/m\*\*2/yr

Number of source-species

combinations with variable  
emissions scaling factors  
provided below in (14d) (NSAR1) Default: 0 ! NSAR1 = 0 !

Number of buoyant polygon area sources  
with variable location and emission  
parameters (NAR2) No default ! NAR2 = 0 !  
(If NAR2 > 0, ALL parameter data for  
these sources are read from the file: BAEMARB.DAT)

!END!

-----  
Subgroup (14b)  
-----

a  
AREA SOURCE: CONSTANT DATA

-----  
Source Effect. Base Initial Emission  
No. Height Elevation Sigma z Rates  
(m) (m) (m)  
----- ----- ----- -----

-----  
a

Data for each source are treated as a separate input subgroup  
and therefore must end with an input group terminator.

b

An emission rate must be entered for every pollutant modeled.  
Enter emission rate of zero for secondary pollutants that are  
modeled, but not emitted. Units are specified by IARU  
(e.g. 1 for g/m\*\*2/s).

-----  
Subgroup (14c)  
-----

COORDINATES (km) FOR EACH VERTEX(4) OF EACH POLYGON

-----  
Source a  
No. Ordered list of X followed by list of Y, grouped by source  
----- -----

-----  
a

Data for each source are treated as a separate input subgroup  
and therefore must end with an input group terminator.

-----  
Subgroup (14d)  
-----

a

## AREA SOURCE: VARIABLE EMISSIONS DATA

---

Use this subgroup to describe temporal variations in the emission rates given in 14b. Factors entered multiply the rates in 14b.  
Skip sources here that have constant emissions. For more elaborate variation in source parameters, use BAEMARB.DAT and NAR2 > 0.

IVARY determines the type of variation, and is source-specific:

(IVARY)                                 Default: 0

- 0 = Constant
- 1 = Diurnal cycle (24 scaling factors: hours 1-24)
- 2 = Monthly cycle (12 scaling factors: months 1-12)
- 3 = Hour & Season (4 groups of 24 hourly scaling factors, where first group is DEC-JAN-FEB)
- 4 = Speed & Stab. (6 groups of 6 scaling factors, where first group is Stability Class A, and the speed classes have upper bounds (m/s) defined in Group 12)
- 5 = Temperature (12 scaling factors, where temperature classes have upper bounds (C) of:  
0, 5, 10, 15, 20, 25, 30, 35, 40,  
45, 50, 50+)

---

a

Data for each species are treated as a separate input subgroup and therefore must end with an input group terminator.

---

## INPUT GROUPS: 15a, 15b, 15c -- Line source parameters

---

### Subgroup (15a)

---

Number of buoyant line sources  
with variable location and emission  
parameters (NLN2)                                 No default ! NLN2 = 0 !

(If NLN2 > 0, ALL parameter data for  
these sources are read from the file: LNEMARB.DAT)

Number of buoyant line sources (NLINES)                  No default ! NLINES = 0 !

Units used for line source  
emissions below                                 (ILNU)                  Default: 1 ! ILNU = 3 !

- 1 = g/s
- 2 = kg/hr
- 3 = lb/hr
- 4 = tons/yr

5 = Odour Unit \* m\*\*3/s (vol. flux of odour compound)  
6 = Odour Unit \* m\*\*3/min  
7 = metric tons/yr

Number of source-species combinations with variable emissions scaling factors provided below in (15c) (NSLN1) Default: 0 ! NSLN1 = 0 !

Maximum number of segments used to model each line (MXNSEG) Default: 7 ! MXNSEG = 7 !

The following variables are required only if NLINES > 0. They are used in the buoyant line source plume rise calculations.

Number of distances at which transitional rise is computed Default: 6 ! NLRISE = 6 !

Average building length (XL) No default ! XL = .0 !  
(in meters)

Average building height (HBL) No default ! HBL = .0 !  
(in meters)

Average building width (WBL) No default ! WBL = .0 !  
(in meters)

Average line source width (WML) No default ! WML = .0 !  
(in meters)

Average separation between buildings (DXL) No default ! DXL = .0 !  
(in meters)

Average buoyancy parameter (FPRIMEL) No default ! FPRIMEL = .0 !  
(in m\*\*4/s\*\*3)

!END!

-----  
Subgroup (15b)  
-----

BUOYANT LINE SOURCE: CONSTANT DATA

-----  
Source Beg. X Beg. Y End. X End. Y Release Base Emission  
No. Coordinate Coordinate Coordinate Coordinate Height Elevation Rates  
(km) (km) (km) (km) (m) (m) -----  
-----

a

Data for each source are treated as a separate input subgroup and therefore must end with an input group terminator.

b

An emission rate must be entered for every pollutant modeled.  
Enter emission rate of zero for secondary pollutants that are  
modeled, but not emitted. Units are specified by ILNTU  
(e.g. 1 for g/s).

---

Subgroup (15c)

---

a

BUOYANT LINE SOURCE: VARIABLE EMISSIONS DATA

---

Use this subgroup to describe temporal variations in the emission  
rates given in 15b. Factors entered multiply the rates in 15b.  
Skip sources here that have constant emissions.

IVARY determines the type of variation, and is source-specific:  
(IVARY) Default: 0

- 0 = Constant
- 1 = Diurnal cycle (24 scaling factors: hours 1-24)
- 2 = Monthly cycle (12 scaling factors: months 1-12)
- 3 = Hour & Season (4 groups of 24 hourly scaling factors,  
where first group is DEC-JAN-FEB)
- 4 = Speed & Stab. (6 groups of 6 scaling factors, where  
first group is Stability Class A,  
and the speed classes have upper  
bounds (m/s) defined in Group 12)
- 5 = Temperature (12 scaling factors, where temperature  
classes have upper bounds (C) of:  
0, 5, 10, 15, 20, 25, 30, 35, 40,  
45, 50, 50+)

---

a

Data for each species are treated as a separate input subgroup  
and therefore must end with an input group terminator.

---

INPUT GROUPS: 16a, 16b, 16c -- Volume source parameters

---

---

Subgroup (16a)

---

Number of volume sources with  
parameters provided in 16b,c (NVL1) No default ! NVL1 = 0 !

Units used for volume source  
emissions below in 16b (IVLU) Default: 1 ! IVLU = 3 !

1 = g/s  
2 = kg/hr  
3 = lb/hr  
4 = tons/yr  
5 = Odour Unit \* m\*\*3/s (vol. flux of odour compound)  
6 = Odour Unit \* m\*\*3/min  
7 = metric tons/yr

Number of source-species combinations with variable emissions scaling factors provided below in (16c) (NSVL1) Default: 0 ! NSVL1 = 0 !

Number of volume sources with variable location and emission parameters (NVL2) No default ! NVL2 = 0 !

(If NVL2 > 0, ALL parameter data for these sources are read from the VOLEMARB.DAT file(s) )

!END!

---

Subgroup (16b)

---

a  
VOLUME SOURCE: CONSTANT DATA

---

X	Y	Effect.	Base	Initial	Initial	Emission	
Coordinate	Coordinate		Height	Elevation	Sigma y	Sigma z	Rates
(km)	(km)	(m)	(m)	(m)	(m)	(m)	
-----	-----	-----	-----	-----	-----	-----	-----

---

a

Data for each source are treated as a separate input subgroup and therefore must end with an input group terminator.

b

An emission rate must be entered for every pollutant modeled. Enter emission rate of zero for secondary pollutants that are modeled, but not emitted. Units are specified by IVLU (e.g. 1 for g/s).

---

Subgroup (16c)

---

a  
VOLUME SOURCE: VARIABLE EMISSIONS DATA

---

Use this subgroup to describe temporal variations in the emission rates given in 16b. Factors entered multiply the rates in 16b. Skip sources here that have constant emissions. For more elaborate

variation in source parameters, use VOLEMARB.DAT and NVL2 > 0.

IVARY determines the type of variation, and is source-specific:

(IVARY) Default: 0

- 0 = Constant
- 1 = Diurnal cycle (24 scaling factors: hours 1-24)
- 2 = Monthly cycle (12 scaling factors: months 1-12)
- 3 = Hour & Season (4 groups of 24 hourly scaling factors, where first group is DEC-JAN-FEB)
- 4 = Speed & Stab. (6 groups of 6 scaling factors, where first group is Stability Class A, and the speed classes have upper bounds (m/s) defined in Group 12)
- 5 = Temperature (12 scaling factors, where temperature classes have upper bounds (C) of: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 50+)

a

Data for each species are treated as a separate input subgroup and therefore must end with an input group terminator.

-----  
INPUT GROUPS: 17a & 17b -- Non-gridded (discrete) receptor information  
-----

-----  
Subgroup (17a)  
-----

Number of non-gridded receptors (NREC) No default ! NREC = 120 !

!END!

-----  
Subgroup (17b)  
-----

a  
NON-GRIDDED (DISCRETE) RECEPTOR DATA

Receptor No.	X Coordinate (km)	Y Coordinate (km)	Ground Height (m)	Above Ground (m)	b
1	IX = 270.32594,	-617.51875,	365,	0.000!	!END!
2	IX = 271.09038,	-617.49392,	365,	0.000!	!END!
3	IX = 271.85481,	-617.46902,	368,	0.000!	!END!
4	IX = 268.76735,	-616.64630,	411,	0.000!	!END!
5	IX = 269.53171,	-616.62161,	462,	0.000!	!END!
6	IX = 270.29606,	-616.59685,	431,	0.000!	!END!

7 !X = 271.06042, -616.57202,	518,	0.000!	!END!
8 !X = 271.82476, -616.54712,	487,	0.000!	!END!
9 !X = 272.58911, -616.52215,	396,	0.000!	!END!
10 !X = 265.68053, -615.82245,	518,	0.000!	!END!
11 !X = 266.44481, -615.79804,	523,	0.000!	!END!
12 !X = 267.20909, -615.77356,	548,	0.000!	!END!
13 !X = 267.97337, -615.74902,	579,	0.000!	!END!
14 !X = 268.73764, -615.72440,	547,	0.000!	!END!
15 !X = 269.50191, -615.69971,	538,	0.000!	!END!
16 !X = 270.26618, -615.67495,	640,	0.000!	!END!
17 !X = 271.03045, -615.65013,	608,	0.000!	!END!
18 !X = 260.30172, -615.06941,	335,	0.000!	!END!
19 !X = 261.06593, -615.04550,	431,	0.000!	!END!
20 !X = 261.83014, -615.02151,	457,	0.000!	!END!
21 !X = 262.59435, -614.99746,	414,	0.000!	!END!
22 !X = 263.35855, -614.97334,	426,	0.000!	!END!
23 !X = 264.12276, -614.94914,	426,	0.000!	!END!
24 !X = 264.88696, -614.92488,	388,	0.000!	!END!
25 !X = 265.65116, -614.90054,	388,	0.000!	!END!
26 !X = 266.41536, -614.87614,	365,	0.000!	!END!
27 !X = 267.17955, -614.85167,	386,	0.000!	!END!
28 !X = 267.94374, -614.82712,	396,	0.000!	!END!
29 !X = 268.70793, -614.80251,	426,	0.000!	!END!
30 !X = 269.47212, -614.77782,	446,	0.000!	!END!
31 !X = 270.23631, -614.75307,	441,	0.000!	!END!
32 !X = 271.00049, -614.72824,	457,	0.000!	!END!
33 !X = 271.76467, -614.70335,	465,	0.000!	!END!
34 !X = 272.52885, -614.67838,	442,	0.000!	!END!
35 !X = 273.29303, -614.65335,	426,	0.000!	!END!
36 !X = 260.27294, -614.14750,	304,	0.000!	!END!
37 !X = 261.03706, -614.12359,	304,	0.000!	!END!
38 !X = 261.80119, -614.09960,	319,	0.000!	!END!
39 !X = 262.56531, -614.07555,	334,	0.000!	!END!
40 !X = 263.32944, -614.05143,	370,	0.000!	!END!
41 !X = 264.09356, -614.02724,	405,	0.000!	!END!
42 !X = 264.85767, -614.00298,	409,	0.000!	!END!
43 !X = 265.62179, -613.97865,	450,	0.000!	!END!
44 !X = 266.38590, -613.95425,	518,	0.000!	!END!
45 !X = 267.15001, -613.92978,	609,	0.000!	!END!
46 !X = 267.91412, -613.90524,	534,	0.000!	!END!
47 !X = 268.67823, -613.88062,	517,	0.000!	!END!
48 !X = 269.44233, -613.85594,	575,	0.000!	!END!
49 !X = 270.20643, -613.83119,	600,	0.000!	!END!
50 !X = 270.97053, -613.80637,	609,	0.000!	!END!
51 !X = 271.73463, -613.78148,	609,	0.000!	!END!
52 !X = 272.49872, -613.75651,	561,	0.000!	!END!
53 !X = 261.00820, -613.20168,	335,	0.000!	!END!
54 !X = 261.77224, -613.17771,	432,	0.000!	!END!
55 !X = 262.53628, -613.15366,	487,	0.000!	!END!
56 !X = 263.30032, -613.12954,	499,	0.000!	!END!
57 !X = 264.06435, -613.10535,	514,	0.000!	!END!
58 !X = 264.82839, -613.08109,	442,	0.000!	!END!
59 !X = 265.59242, -613.05676,	439,	0.000!	!END!
60 !X = 266.35645, -613.03237,	395,	0.000!	!END!
61 !X = 267.12047, -613.00790,	400,	0.000!	!END!
62 !X = 267.88449, -612.98336,	426,	0.000!	!END!

63 !X = 268.64852, -612.95875,	487,	0.000! !END!
64 !X = 269.41254, -612.93407,	548,	0.000! !END!
65 !X = 270.17655, -612.90932,	548,	0.000! !END!
66 !X = 270.94057, -612.88450,	548,	0.000! !END!
67 !X = 271.70458, -612.85962,	535,	0.000! !END!
68 !X = 261.74329, -612.25582,	304,	0.000! !END!
69 !X = 262.50725, -612.23177,	334,	0.000! !END!
70 !X = 263.27120, -612.20765,	396,	0.000! !END!
71 !X = 264.03515, -612.18347,	457,	0.000! !END!
72 !X = 264.79910, -612.15921,	457,	0.000! !END!
73 !X = 265.56305, -612.13489,	426,	0.000! !END!
74 !X = 266.32699, -612.11049,	411,	0.000! !END!
75 !X = 267.09093, -612.08603,	406,	0.000! !END!
76 !X = 267.85487, -612.06149,	396,	0.000! !END!
77 !X = 268.61881, -612.03689,	401,	0.000! !END!
78 !X = 269.38274, -612.01221,	397,	0.000! !END!
79 !X = 261.71434, -611.33393,	322,	0.000! !END!
80 !X = 262.47821, -611.30989,	334,	0.000! !END!
81 !X = 777.7102, -1118.0130,	0,	0.000! !END!
82 !X = 779.9709, -1115.9389,	0,	0.000! !END!
83 !X = 780.6968, -1114.9374,	0,	0.000! !END!
84 !X = 781.4225, -1113.9359,	0,	0.000! !END!
85 !X = 785.6071, -1106.0668,	0,	0.000! !END!
86 !X = 789.2269, -1101.0580,	0,	0.000! !END!
87 !X = 789.7834, -1098.1972,	0,	0.000! !END!
88 !X = 791.2295, -1096.1934,	1,	0.000! !END!
89 !X = 791.1458, -1095.2640,	1,	0.000! !END!
90 !X = 791.7848, -1093.3328,	1,	0.000! !END!
91 !X = 791.7011, -1092.4035,	1,	0.000! !END!
92 !X = 792.3396, -1090.4724,	1,	0.000! !END!
93 !X = 792.2559, -1089.5431,	1,	0.000! !END!
94 !X = 792.1721, -1088.6139,	1,	0.000! !END!
95 !X = 792.0883, -1087.6848,	1,	0.000! !END!
96 !X = 792.0046, -1086.7556,	0,	0.000! !END!
97 !X = 791.9208, -1085.8265,	0,	0.000! !END!
98 !X = 791.7533, -1083.9682,	0,	0.000! !END!
99 !X = 792.5586, -1083.8956,	1,	0.000! !END!
100!X = 792.4747, -1082.9665,	1,	0.000! !END!
101!X = 791.5858, -1082.1101,	0,	0.000! !END!
102!X = 792.3909, -1082.0375,	1,	0.000! !END!
103!X = 791.5020, -1081.1811,	0,	0.000! !END!
104!X = 792.3071, -1081.1085,	1,	0.000! !END!
105!X = 791.4182, -1080.2521,	1,	0.000! !END!
106!X = 791.3345, -1079.3231,	1,	0.000! !END!
107!X = 790.4459, -1078.4666,	0,	0.000! !END!
108!X = 791.2507, -1078.3941,	1,	0.000! !END!
109!X = 790.3623, -1077.5376,	0,	0.000! !END!
110!X = 791.1670, -1077.4651,	1,	0.000! !END!
111!X = 790.2786, -1076.6087,	0,	0.000! !END!
112!X = 790.1949, -1075.6798,	0,	0.000! !END!
113!X = 790.1113, -1074.7509,	1,	0.000! !END!
114!X = 789.2232, -1073.8944,	0,	0.000! !END!
115!X = 789.1397, -1072.9655,	0,	0.000! !END!
116!X = 788.2519, -1072.1090,	0,	0.000! !END!
117!X = 788.1684, -1071.1802,	1,	0.000! !END!
118!X = 787.2808, -1070.3236,	0,	0.000! !END!

```
119!X = 786.3934, -1069.4669,   0,      0.000! !END!
120!X = 785.5062, -1068.6102,   0,      0.000! !END!
```

\*\*\*\* CONFIRMATION OF CONTROL DATA \*\*\*\*

----- INPUT GROUP 1 -----

```
metrun = 0
ibyr  = 2001
ibmo  = 1
ibdy  = 1
ibhr  = 0
irlg   = 8760
xbtz  = 0.0000000E+00
nspec  = 9
nse   = 7
itest  = 2
metfm  = 1
mprffm = 1
mrestart= 0
nrespd = 0
avet   = 60.0000000
pgtime = 60.0000000
```

----- INPUT GROUP 2 -----

```
mgauss = 1
mctadj = 3
mctsg  = 0
mslug  = 0
mtrans = 1
mchem  = 1
maqchem = 0
mwet   = 1
mdry   = 1
mtilt  = 0
mdisp  = 3
mdisp2 = 3
mturbvw = 3
mtauly = 0.0000000E+00
mtauadv= 0
mcturb = 1
mrough = 0
mtip   = 1
mbdw   = 1
mshear = 0
msplit = 0
mpartl = 1
mtinv  = 0
mpdf   = 0
msgtbl= 0
mbcon  = 0
msource= 0
mfog   = 0
mreg   = 1
```

Technical options must conform to USEPA

Long Range Transport (LRT) guidance

METFM 1 or 2  
AVET 60. (min)  
PGTIME 60. (min)  
MGAUSS 1  
MCTADJ 3  
MTRANS 1  
MTIP 1  
MCHEM 1 or 3 (if modeling SOx, NOx)  
MWET 1  
MDRY 1  
MDISP 2 or 3  
MPDF 0 if MDISP=3  
1 if MDISP=2  
MROUGH 0  
MPARTL 1  
SYTDEP 550. (m)  
MHFTSZ 0  
SVMIN 0.5 (m/s)

----- INPUT GROUP 3 -----

SPECIES: SO2 j: 1 isplst(-,j) = 1 1 1 GROUP: SO2  
SPECIES: SO4 j: 2 isplst(-,j) = 1 1 2 GROUP: SO4  
SPECIES: NOX j: 3 isplst(-,j) = 1 1 1 GROUP: NOX  
SPECIES: HNO3 j: 4 isplst(-,j) = 1 0 1 GROUP: HNO3  
SPECIES: NO3 j: 5 isplst(-,j) = 1 0 2 GROUP: NO3  
SPECIES: PMC j: 6 isplst(-,j) = 1 1 2 GROUP: PMC  
SPECIES: PMF j: 7 isplst(-,j) = 1 1 2 GROUP: PMF  
SPECIES: EC j: 8 isplst(-,j) = 1 1 2 GROUP: EC  
SPECIES: SOA j: 9 isplst(-,j) = 1 1 2 GROUP: SOA

----- INPUT GROUP 4 -----

pmap = LCC  
datum = WGS-G  
daten = 02-21-2003  
feast = 0.0000000E+00  
fnorth = 0.0000000E+00  
rlat0 = 40.0000000  
rlon0 = 97.0000000  
xlat1 = 33.0000000  
xlat2 = 45.0000000  
nx = 306  
ny = 246  
nz = 10  
zface = 0.0000000E+00 20.0000000 40.0000000 80.0000000 160.0000000 320.0000000 640.0000000  
1200.000000 2000.000000 3000.000000 4000.000000  
dgridkm = 6.0000000  
xorigkm = -1008.00000  
yorigkm = -1620.00000  
iutmzn = -999  
ibcomp = 1  
jbcomp = 1  
iecomp = 306

```
jecomp = 246
lsamp = F
ibsamp = 1
jbsamp = 1
iesamp = 306
jesamp = 246
meshdn = 1
```

----- INPUT GROUP 5 -----

```
icon = 1
idry = 1
iwet = 1
ivis = 1
lcomprs = T
icprt = 1
idprt = 0
iwprt = 0
icfrq = 1
idfrq = 1
iwfrq = 1
iprtu = 3
imesg = 2
imflx = 0
imbal = 0
iqaplot = 1
ldebug = F
ipfdeb = 1
npfdeb = 1
nn1 = 1
nn2 = 10
```

```
GROUP: SO2      j: 1 ioutop(-,j) = 0 1 0 1 0 1 1
GROUP: SO4      j: 2 ioutop(-,j) = 0 1 0 1 0 1 1
GROUP: NOX      j: 3 ioutop(-,j) = 0 1 0 1 0 1 1
GROUP: HNO3     j: 4 ioutop(-,j) = 0 1 0 1 0 1 1
GROUP: NO3      j: 5 ioutop(-,j) = 0 1 0 1 0 1 1
GROUP: PMC      j: 6 ioutop(-,j) = 0 1 0 1 0 1 1
GROUP: PMF      j: 7 ioutop(-,j) = 0 1 0 1 0 1 1
GROUP: EC       j: 8 ioutop(-,j) = 0 1 0 1 0 1 1
GROUP: SOA      j: 9 ioutop(-,j) = 0 1 0 1 0 1 1
```

----- INPUT GROUP 6 -----

----- Subgroup (6a) -----

```
nhill = 0
nctrec = 0
mhill = 2
xhill2m= 1.00000000
zhill2m= 1.00000000
xctdmkm= 0.00000000E+00
yctdmkm= 0.00000000E+00
```

----- Subgroup (6b) -----

----- Subgroup (6c) -----

----- INPUT GROUP 7 -----

SPECIES: SO2	j: 1	dryg(-,j) =	0.15	1000.00	8.00	0.00	0.04
SPECIES: SO4	j: 2	dryg(-,j) =	-999.00	-999.00	-999.00	-999.00	-999.00
SPECIES: NOX	j: 3	dryg(-,j) =	0.17	1.00	8.00	5.00	3.50
SPECIES: HNO3	j: 4	dryg(-,j) =	0.16	1.00	18.00	0.00	0.00
SPECIES: NO3	j: 5	dryg(-,j) =	-999.00	-999.00	-999.00	-999.00	-999.00
SPECIES: PMC	j: 6	dryg(-,j) =	-999.00	-999.00	-999.00	-999.00	-999.00
SPECIES: PMF	j: 7	dryg(-,j) =	-999.00	-999.00	-999.00	-999.00	-999.00
SPECIES: EC	j: 8	dryg(-,j) =	-999.00	-999.00	-999.00	-999.00	-999.00
SPECIES: SOA	j: 9	dryg(-,j) =	-999.00	-999.00	-999.00	-999.00	-999.00

----- INPUT GROUP 8 -----

SPECIES: SO2	j: 1	dryp(-,j) =	-999.00	-999.00
SPECIES: SO4	j: 2	dryp(-,j) =	0.48	2.00
SPECIES: NOX	j: 3	dryp(-,j) =	-999.00	-999.00
SPECIES: HNO3	j: 4	dryp(-,j) =	-999.00	-999.00
SPECIES: NO3	j: 5	dryp(-,j) =	0.48	2.00
SPECIES: PMC	j: 6	dryp(-,j) =	6.00	2.00
SPECIES: PMF	j: 7	dryp(-,j) =	0.48	2.00
SPECIES: EC	j: 8	dryp(-,j) =	0.48	2.00
SPECIES: SOA	j: 9	dryp(-,j) =	0.48	2.00

----- INPUT GROUP 9 -----

rcutr = 30.0000000  
rgr = 10.0000000  
reactr = 8.00000000  
pconst = 2.30000001E-08  
bmin = 1.00000001E-07  
bmax = 2.49999994E-06  
qswmax = 600.000000  
dconst1 = 2.00000000  
dconst2 = 0.666666687  
dconst3 = 4.79999988E-04  
dconst4 = 0.666666687  
nint = 9  
iveg = 1

----- INPUT GROUP 10 -----

SPECIES: SO2	j: 1	wa(-,j) =	3.210E-05	0.000E+00
SPECIES: SO4	j: 2	wa(-,j) =	1.000E-04	3.000E-05
SPECIES: NOX	j: 3	wa(-,j) =	0.000E+00	0.000E+00
SPECIES: HNO3	j: 4	wa(-,j) =	6.000E-05	0.000E+00
SPECIES: NO3	j: 5	wa(-,j) =	1.000E-04	3.000E-05
SPECIES: PMC	j: 6	wa(-,j) =	1.000E-04	3.000E-05
SPECIES: PMF	j: 7	wa(-,j) =	1.000E-04	3.000E-05
SPECIES: EC	j: 8	wa(-,j) =	1.000E-04	3.000E-05
SPECIES: SOA	j: 9	wa(-,j) =	1.000E-04	3.000E-05

----- INPUT GROUP 11 -----

```
moz    = 1
bcko3m = 40.0000000 40.0000000 40.0000000 40.0000000
      = 40.0000000 40.0000000 40.0000000 40.0000000
      = 40.0000000 40.0000000 40.0000000 40.0000000
bcknh3m = 3.00000000 3.00000000 3.00000000 3.00000000
      = 3.00000000 3.00000000 3.00000000 3.00000000
      = 3.00000000 3.00000000 3.00000000 3.00000000
rnite1 = 0.20000003
rnite2 = 2.00000000
rnite3 = 2.00000000
mh2o2 = 1
bckh2o2m = 1.00000000 1.00000000 1.00000000 1.00000000
      = 1.00000000 1.00000000 1.00000000 1.00000000
      = 1.00000000 1.00000000 1.00000000 1.00000000
bckpmf = 1.00000000 1.00000000 1.00000000 1.00000000
      = 1.00000000 1.00000000 1.00000000 1.00000000
      = 1.00000000 1.00000000 1.00000000 1.00000000
ofrac  = 0.15000006 0.15000006 0.20000003 0.20000003
      = 0.20000003 0.20000003 0.20000003 0.20000003
      = 0.20000003 0.20000003 0.20000003 0.15000006
vcnx   = 50.0000000 50.0000000 50.0000000 50.0000000
      = 50.0000000 50.0000000 50.0000000 50.0000000
      = 50.0000000 50.0000000 50.0000000 50.0000000
```

----- INPUT GROUP 12 -----

```
sytdep = 550.000000
mhftsz = 0
jsup   = 5
conk1  = 9.9999978E-03
conk2  = 0.10000001
iurb1  = 10
iurb2  = 19

anemht = 10.0000000
isigmax = 1
imixctdm = 0
ilanduin = 20
z0in   = 0.250000000
xlaein = 3.00000000
elevin = 0.00000000E+00
xlatin = -999.000000
xlonin = -999.000000

xmxlen = 1.00000000
mxnew  = 60
xsamlen = 10.0000000
mxsam   = 60
ncount  = 2
sl2pf   = 10.0000000
wscalm  = 0.499994993
cdiv    = 0.00000000E+00 0.00000000E+00

wscat  = 1.53999996 top for class 1
```

```
wscat = 3.08999991 top for class 2
wscat = 5.13999987 top for class 3
wscat = 8.22999954 top for class 4
wscat = 10.8000002 top for class 5
```

#### Over LAND

```
svmin = 0.500000000 for stability 1
svmin = 0.500000000 for stability 2
svmin = 0.500000000 for stability 3
svmin = 0.500000000 for stability 4
svmin = 0.500000000 for stability 5
svmin = 0.500000000 for stability 6
swmin = 0.200000003 for stability 1
swmin = 0.119999997 for stability 2
swmin = 7.99999982E-02 for stability 3
swmin = 5.99999987E-02 for stability 4
swmin = 2.99999993E-02 for stability 5
swmin = 1.60000008E-02 for stability 6
```

#### Over WATER

```
svmin = 0.500000000 for stability 1
svmin = 0.500000000 for stability 2
svmin = 0.500000000 for stability 3
svmin = 0.500000000 for stability 4
svmin = 0.500000000 for stability 5
svmin = 0.500000000 for stability 6
swmin = 0.200000003 for stability 1
swmin = 0.119999997 for stability 2
swmin = 7.99999982E-02 for stability 3
swmin = 5.99999987E-02 for stability 4
swmin = 2.99999993E-02 for stability 5
swmin = 1.60000008E-02 for stability 6
```

```
symin = 1.00000000
szmin = 1.00000000
xminzi = 20.0000000
xmaxzi = 3000.00000
```

```
plx0 = 7.00000003E-02 for stability 1
plx0 = 7.00000003E-02 for stability 2
plx0 = 0.10000001 for stability 3
plx0 = 0.15000006 for stability 4
plx0 = 0.34999994 for stability 5
plx0 = 0.550000012 for stability 6
```

```
ptg0 = 1.99999996E-02 for stability 5
ptg0 = 3.50000001E-02 for stability 6
```

```
ppc = 0.500000000 for stability 1
ppc = 0.500000000 for stability 2
ppc = 0.500000000 for stability 3
ppc = 0.500000000 for stability 4
ppc = 0.34999994 for stability 5
ppc = 0.34999994 for stability 6
tbd = 0.500000000
tibldist = 1.00000000 10.0000000 9.00000000
```

```
nsplit = 3
iresplit = 0 0 0 0
    = 0 0 0 0
    = 0 0 0 0
    = 0 0 0 0
    = 0 0 0 1
    = 0 0 0 0
zisplit = 100.000000
r0ldmax = 0.250000000
nsp lith = 5
sysplith = 6000.00000
shsplith = 3.33333325
cnsplith = 1.00000001E-07 1.00000001E-07 1.00000001E-07 1.00000001E-07 1.00000001E-07
1.00000001E-07 1.00000001E-07 1.00000001E-07 1.00000001E-07
epsslug = 9.9999975E-05
epsarea = 9.9999997E-07
dsrise = 1.00000000
trajincl = 20.0000000
mdepbc = 1
htminbc = 500.000000
rsampbc = 10.0000000
```

----- INPUT GROUP 13 -----

```
npt1 = 2
iptu = 3 units = lb/hr
    converted to g/s by factor: 0.126000002
nspt1 = 0
npt2 = 0

cnampt1 = UNIT 1      UNIT 2
xpt1grd = 236.080994 236.068665
ypt1grd = 112.933327 112.952332
htstak = 59.7400017 81.0800018
elstak = 34.1399994 34.1599998
diam = 5.15100002 5.48600006
exitw = 22.7420006 36.2709999
tstak = 414.820007 425.929993
idownw = 0 0
syipt1 = 0.00000000E+00 0.00000000E+00
szipt1 = 0.00000000E+00 0.00000000E+00
fmfppt1 = 1.00000000 1.00000000
zplatpt1 = 0.00000000E+00 0.00000000E+00
```

```
pt. source: UNIT 1      number: 1
qstak = 422.641815 6.91740036 166.509003 0.00000000E+00 0.00000000E+00 6.16140032
15.3468008 1.22220004 1.22220004
```

```
pt. source: UNIT 2      number: 2
qstak = 692.357422 8.94600010 368.424011 0.00000000E+00 0.00000000E+00 7.05600023
5.44320011 0.214200005 2.23020005
```

----- INPUT GROUP 14 -----

```
nar1 = 0
iaru = 1 units = g/s/m^2
```

converted to g/s/m<sup>2</sup> by factor: 1.00000000  
nsar1 = 0  
nar2 = 0

----- INPUT GROUP 15 -----

nln2 = 0  
nlines = 0  
ilnu = 3 units = lb/hr  
converted to g/s by factor: 0.126000002  
nsln1 = 0  
xl = 0.0000000E+00  
hbl = 0.0000000E+00  
wbl = 0.0000000E+00  
wml = 0.0000000E+00  
dxl = 0.0000000E+00  
fprimel = 0.0000000E+00  
mxnseg = 7  
nlrise = 6

----- INPUT GROUP 16 -----

nvl1 = 0  
ivlu = 3 units = lb/hr  
converted to g/s by factor: 0.126000002  
nsvl1 = 0  
nvl2 = 0

----- INPUT GROUP 17 -----

nrec = 120  
xng = 213.054321 213.181732 213.309128 212.794556 212.921951 213.049347 213.176743  
213.304123 213.431519 212.280090 212.407471 212.534851 212.662231 212.789612 212.916992  
213.044357 213.171738 211.383621 211.510986 211.638351 211.765732 211.893097 212.020462  
212.147827 212.275192 212.402557 212.529922 212.657288 212.784653 212.912018 213.039383  
213.166748 213.294113 213.421478 213.548843 211.378830 211.506180 211.633530 211.760880  
211.888245 212.015594 212.142944 212.270294 212.397644 212.525009 212.652359 212.779709  
212.907059 213.034409 213.161758 213.289108 213.416458 211.501373 211.628708 211.756042  
211.883392 212.010727 212.138062 212.265396 212.392746 212.520081 212.647415 212.774750  
212.902084 213.029419 213.156769 213.284103 211.623886 211.751205 211.878540 212.005859  
212.133179 212.260513 212.387833 212.515152 212.642471 212.769806 212.897125 211.619049  
211.746368 297.618378 297.995148 298.116119 298.237091 298.934509 299.537811 299.630554  
299.871582 299.857635 299.964142 299.950195 300.056610 300.042664 300.028687 300.014709  
300.000763 299.986786 299.958893 300.093109 300.079102 299.930969 300.065155 299.916992  
300.051178 299.903046 299.889069 299.740997 299.875122 299.727051 299.861176 299.713104  
299.699158 299.685211 299.537201 299.523285 299.375305 299.361389 299.213470 299.065552  
298.917694  
yng = 167.080215 167.084351 167.088501 167.225616 167.229736 167.233856 167.237991  
167.242142 167.246307 167.362930 167.366989 167.371078 167.375168 167.379257 167.383377  
167.387512 167.391647 167.488434 167.492416 167.496414 167.500427 167.504440 167.508469  
167.512527 167.516586 167.520645 167.524719 167.528809 167.532913 167.537033 167.541153  
167.545303 167.549438 167.553604 167.557785 167.642075 167.646072 167.650070 167.654068  
167.658096 167.662125 167.666168 167.670227 167.674301 167.678360 167.682465 167.686569

167.690674 167.694809 167.698929 167.703079 167.707245 167.799728 167.803711 167.807724  
 167.811752 167.815781 167.819809 167.823868 167.827942 167.832016 167.836105 167.840210  
 167.844315 167.848450 167.852585 167.856735 167.957367 167.961380 167.965393 167.969421  
 167.973465 167.977524 167.981583 167.985657 167.989761 167.993851 167.997971 168.111008  
 168.115021 83.6645126 84.0101929 84.1771011 84.3440170 85.6555405 86.4903336 86.9671402  
 87.3011093 87.4559937 87.7778702 87.9327621 88.2546005 88.4094849 88.5643539 88.7192001  
 88.8740616 89.0289078 89.3386459 89.3507309 89.5055771 89.6483154 89.6604233 89.8031387  
 89.8152466 89.9579849 90.1128159 90.2555771 90.2676620 90.4104004 90.4224854 90.5652237  
 90.7200317 90.8748550 91.0176010 91.1724243 91.3151627 91.4699707 91.6127319 91.7555161  
 91.8982925  
 zng = 0.0000000E+00 0.0000000E+00 0.0000000E+00 0.0000000E+00 0.0000000E+00  
 elevng = 365.000000 365.000000 368.000000 411.000000 462.000000 431.000000 518.000000  
 487.000000 396.000000 518.000000 523.000000 548.000000 579.000000 547.000000 538.000000  
 640.000000 608.000000 335.000000 431.000000 457.000000 414.000000 426.000000 426.000000  
 388.000000 388.000000 365.000000 386.000000 396.000000 426.000000 446.000000 441.000000  
 457.000000 465.000000 442.000000 426.000000 304.000000 304.000000 319.000000 334.000000  
 370.000000 405.000000 409.000000 450.000000 518.000000 609.000000 534.000000 517.000000  
 575.000000 600.000000 609.000000 609.000000 561.000000 335.000000 432.000000 487.000000  
 499.000000 514.000000 442.000000 439.000000 395.000000 400.000000 426.000000 487.000000  
 548.000000 548.000000 548.000000 535.000000 304.000000 334.000000 396.000000 457.000000  
 457.000000 426.000000 411.000000 406.000000 396.000000 401.000000 397.000000 322.000000  
 334.000000 0.0000000E+00 0.0000000E+00 0.0000000E+00 0.0000000E+00 0.0000000E+00  
 0.0000000E+00 0.0000000E+00 1.00000000 1.00000000 1.00000000 1.00000000 1.00000000  
 1.00000000 1.00000000 1.00000000 0.00000000E+00 0.00000000E+00 0.00000000E+00 1.00000000  
 1.00000000 0.00000000E+00 1.00000000 0.00000000E+00 1.00000000 1.00000000 1.00000000  
 0.00000000E+00 1.00000000 0.00000000E+00 1.00000000 0.00000000E+00 0.00000000E+00  
 1.00000000 0.00000000E+00 0.00000000E+00 0.00000000E+00 1.00000000 0.00000000E+00  
 0.00000000E+00 0.00000000E+00

---

INPUT FILES

Default Name	Unit No.	File Name and Path
CALPUFF.INP	1	CP_CLECO_01.INP
CALMET.DAT	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0101-0110.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0111-0120.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0121-0131.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0201-0210.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0211-0220.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0221-0228.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0301-0310.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0311-0320.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0321-0331.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0401-0410.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0411-0420.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0421-0430.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0501-0510.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0511-0520.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0521-0531.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0601-0610.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0611-0620.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0621-0630.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0701-0710.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0711-0720.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0721-0731.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0801-0810.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0811-0820.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0821-0831.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0901-0910.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0911-0920.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.0921-0930.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.1001-1010.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.1011-1020.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.1021-1031.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.1101-1110.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.1111-1120.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.1121-1130.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.1201-1210.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.1211-1220.SOUTH.DAT
(---)	7	E:\LDEQ CALMET DATA\2001\CMET.2001.1221-1231.SOUTH.DAT
OZONE.DAT	22	E:\LDEQ OZONE DATA\O3_2001.TXT

---

#### OUTPUT FILES

Default Name	Unit No.	File Name and Path
CALPUFF.LST	2	CP_CLECO_01.LST
CONC.DAT	8	CP_CLECO_01.DAT
DFLX.DAT	9	CP_CLECO_01.DRY
WFLX.DAT	10	CP_CLECO_01.WET
VISB.DAT	11	CP_CLECO_01.VIS

#### LAST DAY/HOUR PROCESSED:

Year: 2001 Month: 12 Day: 31 Julian day: 365 Hour: 23

End of run -- Clock time: 15:37:01  
Date: 04-30-2015

Elapsed Clock Time: 3289.0 (seconds)

CPU Time: 3289.0 (seconds)